


FCC Test Report

Equipment : Remote Controller
Model No. : TR-015-1
FCC ID : PAGTR-015-1
Standard : 47 CFR FCC Part 15.231
Operating Band : 315 MHz
Operation : Manually operated within 5 sec
FCC Classification : DSC
Applicant : **KAB Enterprise Co., Ltd.**
21F, -1, No.33, Sec. 1, Minsheng Rd., Banqiao Dist.,
New Taipei City 220, Taiwan (R.O.C)
Manufacturer : **Verdant Electronics(Dong Guan) Co., Ltd.**
Langxie Administrative District, Qiaotou,
Dongguan City, Guang Dong Sheng, China.

The product sample received on May 03, 2013 and completely tested on Jun. 07, 2013. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2009 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:



Wayne Hsu / Assistant Manager





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Summary of Test Result

| Conformance Test Specifications | | | | | |
|---------------------------------|------------------|---|---|--|----------|
| Report Clause | Ref. Std. Clause | Description | Measured | Limit | Result |
| 1.1.2 | 15.203 | Antenna Requirement | Antenna connector mechanism complied | FCC 15.203 | Complied |
| 3.1 | 15.207 | AC Power-line Conducted Emissions | - | FCC 15.207 | NA |
| 3.2 | 15.231(c) | Emission Bandwidth | 45.50 kHz | Fc(70~900MHz): BW ≤ fc x 0.25% | Complied |
| 3.3 | 15.231(b)/(e) | Fundamental Emissions | [dBuV/m at 3m]: 54.49 (Margin 21.13dB) -AV | [dBuV/m at 3m]: average: 75.62 | Complied |
| 3.4 | 15.231(b)/(e) | Transmitter Radiated Unwanted Emissions | [dBuV/m at 3m]: 1574.000MHz 52.42 (Margin 1.58dB) - AV | FCC 15.231 (b)/(e) or FCC 15.209, whichever limit permits higher field strength. | Complied |
| 3.5 | 15.231(a)/(e) | Operation Restriction | Operated time and silent time are less than limits. | Manually operated within 5 sec | Complied |

NA = Not Applicable



1 General Description

1.1 Information

1.1.1 RF General Information

| RF General Information | | | | | |
|--|------------|---------------------|----------------|-------------------------------------|-------------|
| Frequency Range (MHz) | Modulation | Ch. Frequency (MHz) | Channel Number | Fundamental Field Strength (dBuV/m) | Co-location |
| 315 | ASK | 315 | 1 | 54.49 | N/A |
| Note 1: Field strength performed average level at 3m. Note 2: Co-location, Co-location is generally defined as simultaneously transmitting (co-transmitting) antennas within 20 cm of each other. | | | | | |

1.1.2 Antenna Information

| Antenna Category | |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | Integral antenna (antenna permanently attached) |
| <input type="checkbox"/> | External antenna (dedicated antennas) ; Unique antenna connector |

1.1.3 Type of EUT

| Identify EUT | |
|-------------------------------------|---|
| EUT Serial Number | N/A |
| Presentation of Equipment | <input checked="" type="checkbox"/> Production ; <input type="checkbox"/> Pre-Production ; <input type="checkbox"/> Prototype |
| Type of EUT | |
| <input checked="" type="checkbox"/> | Stand-alone |
| <input type="checkbox"/> | Combined (EUT where the radio part is fully integrated within another device) Combined Equipment - Brand Name / Model No.: ... |
| <input type="checkbox"/> | Plug-in radio (EUT intended for a variety of host systems) Host System - Brand Name / Model No.: ... |
| <input type="checkbox"/> | Other: |

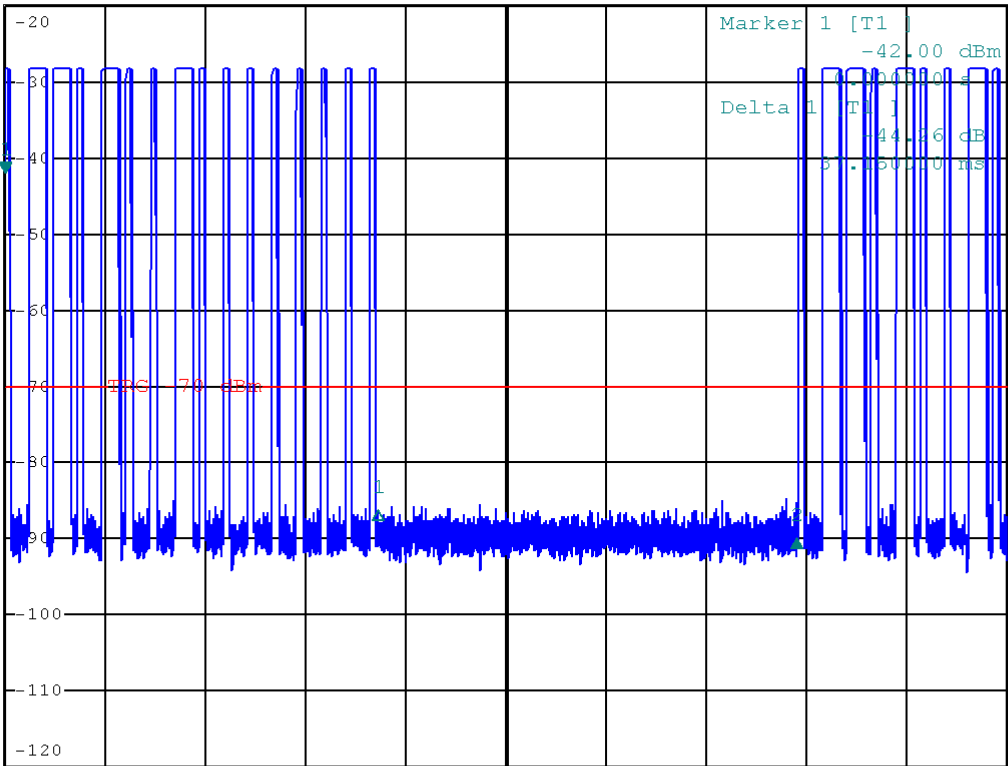
1.1.4 Test Signal Duty Cycle

| Operated Mode for Worst Duty Cycle | |
|---|--|
| <input checked="" type="checkbox"/> Operated normally mode for worst duty cycle | |
| <input type="checkbox"/> Operated test mode for worst duty cycle | |
| Test Signal Duty Cycle (x) | Duty Cycle Correction Factor [dB] – (20 log x) |
| <input checked="" type="checkbox"/> 28.99% | 10.76 |

PS

RBW 1 MHz Delta 2 [T1] -47.87 dB
 *VBW 1 MHz 79.000000 ms
 SWT 100 ms

Ref -20 dBm *Att 0 dB Marker 1 [T1] -42.00 dBm
 Delta 1 [T1] -44.26 dB
 5.150110 ms



Center 315 MHz 10 ms/

Date: 16.MAY.2013 21:12:28

Duty cycle = On time 28.99ms bin (2319) / Total Time 100ms bin (8001) = 28.99%

If worst duty < 100%, average emission = peak emission + 20 log x

1.1.5 EUT Operational Condition

| | | | |
|--------------------------|---|--|---|
| Supply Voltage | <input type="checkbox"/> AC mains | <input checked="" type="checkbox"/> DC | |
| Type of DC Source | <input type="checkbox"/> Internal DC supply | <input type="checkbox"/> External DC adapter | <input checked="" type="checkbox"/> Battery |



1.2 Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR FCC Part 15
- ♦ ANSI C63.10-2009

1.3 Testing Location Information

| Testing Location | | | | |
|-------------------------------------|---------------|--|----------------------|------------------------------|
| <input checked="" type="checkbox"/> | HWA YA | ADD : No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. | | |
| | | TEL : 886-3-327-3456 | FAX : 886-3-327-0973 | |
| Test Condition | Test Site No. | Test Engineer | Test Environment | Test Date |
| RF Conducted | TH01-HY | Ben | 22.1°C / 61% | May 15, 2013 May 16, 2013 |
| Radiated Emission | 03CH03-HY | Vic | 24°C / 54% | Jun. 07, 2013 |

1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

| Measurement Uncertainty | | | |
|-----------------------------------|---------------|--------------------|--------------|
| Test Item | | Uncertainty | Limit |
| AC power-line conducted emissions | | ±2.26 dB | N/A |
| Emission bandwidth | | ±1.42 % | N/A |
| RF output power, conducted | | ±0.63 dB | N/A |
| Power density, conducted | | ±0.81 dB | N/A |
| Unwanted emissions, conducted | 30 – 1000 MHz | ±0.51 dB | N/A |
| | 1 – 18 GHz | ±0.67 dB | N/A |
| | 18 – 40 GHz | ±0.83 dB | N/A |
| | 40 – 200 GHz | N/A | N/A |
| All emissions, radiated | 30 – 1000 MHz | ±2.56 dB | N/A |
| | 1 – 18 GHz | ±3.59 dB | N/A |
| | 18 – 40 GHz | ±3.82 dB | N/A |
| | 40 – 200 GHz | N/A | N/A |
| Temperature | | ±0.8 °C | N/A |
| Humidity | | ±3 % | N/A |
| DC and low frequency voltages | | ±3 % | N/A |
| Time | | ±1.42 % | N/A |
| Duty Cycle | | ±1.42 % | N/A |

2 Test Configuration of EUT




2.1 The Worst Case Modulation Configuration

| Modulation Used for Conformance Testing | |
|---|--------------------------------|
| Test Mode | Field Strength (dBuV/m at 3 m) |
| ASK-Transmit | 54.49 |

2.2 Test Channel Frequencies Configuration

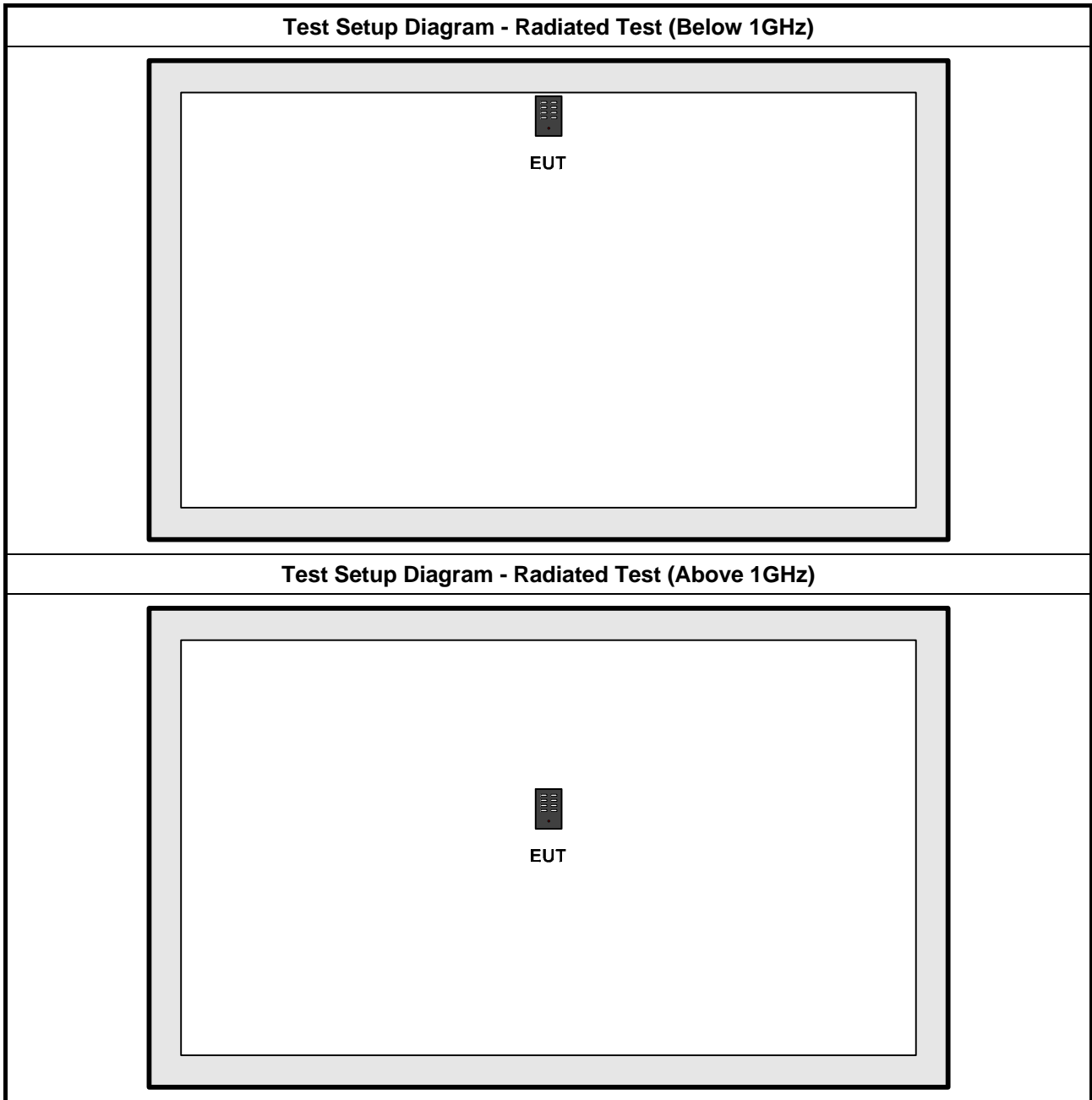
| Test Channel Frequencies Configuration | |
|--|--------------------------------|
| Test Mode | Test Channel Frequencies (MHz) |
| ASK-Transmit | 315-(F1) |

2.3 The Worst Case Measurement Configuration

| The Worst Case Mode for Following Conformance Tests | | | |
|---|--|---|---|
| Tests Item | Emission Bandwidth, Fundamental Emissions, Radiated Unwanted Emissions | | |
| Test Condition | Radiated measurement | | |
| User Position | <input type="checkbox"/> EUT will be placed in fixed position. | | |
| | <input type="checkbox"/> EUT will be placed in mobile position and operating multiple positions. EUT shall be performed two orthogonal planes. | | |
| | <input checked="" type="checkbox"/> EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions. EUT shall be performed two or three orthogonal planes. The worst planes is X. | | |
| Test Mode | ASK-Transmit | | |
| Orthogonal Planes of EUT | X Plane | Y Plane | Z Plane |
| |  |  |  |

| The Worst Case Mode for Following Conformance Tests | |
|---|--|
| Tests Item | Operation Restriction (silent time and operated time) |
| Test Condition | Radiated measurement |
| Test Mode | Operated normally mode for worst duty cycle condition. |

2.4 Test Setup Diagram



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

| AC Power-line Conducted Emissions Limit | | |
|---|------------|-----------|
| Frequency Emission (MHz) | Quasi-Peak | Average |
| 0.15-0.5 | 66 - 56 * | 56 - 46 * |
| 0.5-5 | 56 | 46 |
| 5-30 | 60 | 50 |

Note 1: * Decreases with the logarithm of the frequency.

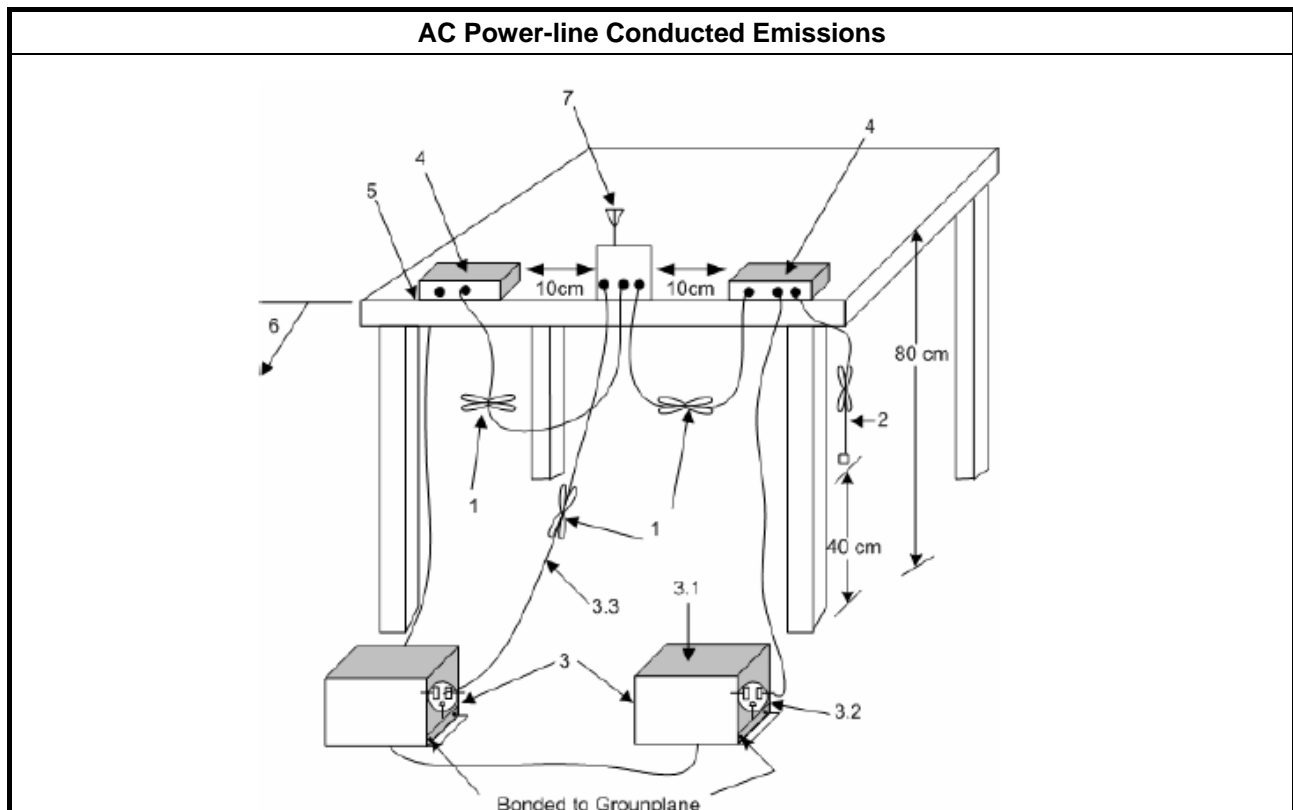
3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

| Test Method |
|--|
| <input checked="" type="checkbox"/> Refer as ANSI C63.10-2009, clause 6.2 for AC power-line conducted emissions. |

3.1.4 Test Setup





3.1.5 Test Result of AC Power-line Conducted Emissions

The EUT is battery powered; there is no need to do this testing.

3.2 Emission Bandwidth

3.2.1 Emission Bandwidth Limit

| Emission Bandwidth Limit | |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | Emission bandwidth falls completely within authorized band. |
| <input checked="" type="checkbox"/> | $F_c(70\sim 900\text{MHz}): BW \leq f_c \times 0.25\%$ |
| <input type="checkbox"/> | $F_c(>900\text{MHz}): BW \leq f_c \times 0.5\%$ |

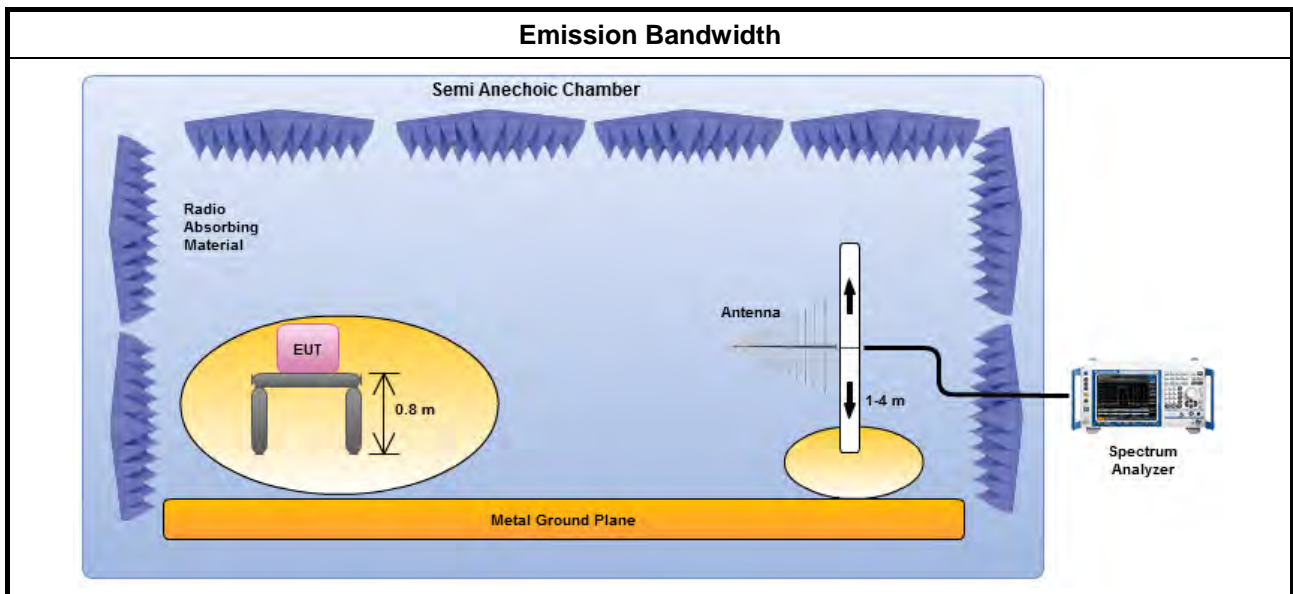
3.2.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.2.3 Test Procedures

| Test Method | |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 6.9.1 for 20 dB emission bandwidth and 99% occupied bandwidth measurement. |

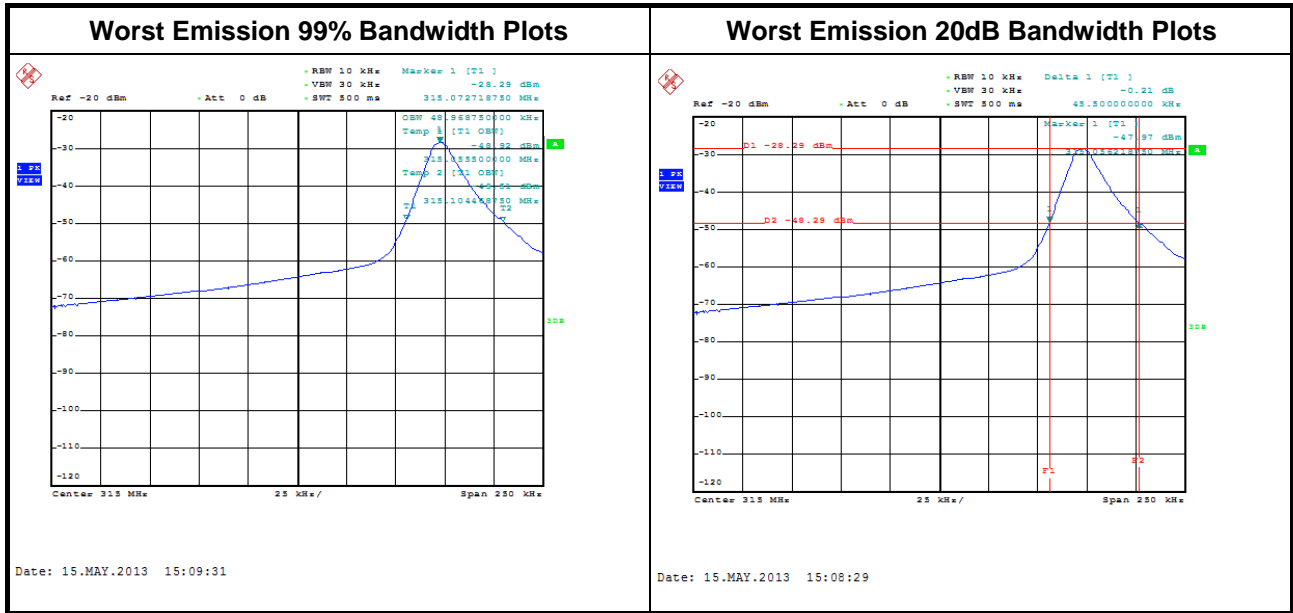
3.2.4 Test Setup





3.2.5 Test Result of Emission Bandwidth

| Emission Bandwidth Result | | | |
|---------------------------|-----------------|---------------------|---------------|
| Modulation Mode | Frequency (MHz) | 99% Bandwidth (kHz) | 20dB BW (kHz) |
| ASK-Transmit | 315 | 48.96 | 45.50 |
| Limit | | 787.5 | N/A |
| Result | | Complied | |



3.3 Fundamental Emissions

3.3.1 Fundamental Emissions Limit

| For manually operated within 5 sec, activated automatically within 5 sec, periodic transmissions | | |
|--|--------------------------------|----------------------------------|
| Frequency Band (MHz) | Fundamental Limit (uV/m) at 3m | Fundamental Limit (dBuV/m) at 3m |
| 40.66-40.70 | 2250 | 67 |
| 70-130 | 1250 | 61.9 |
| 130-174 | 1250-3750(**) | 61.9-71.5 |
| 174-260 | 3750 | 71.5 |
| 260-470 | 3750-12500(**) | 71.5-81.9 |
| Above 470 | 12500 | 81.9 |

**1. Linear interpolations, the formulas for calculating the maximum permitted fundamental field strengths are as follows:
 (1) for the band 130 - 174 MHz, $\mu\text{V/m}$ at 3 meters = $56.81818 \times (\text{operating frequency, MHz}) - 6136.3636$;
 (2) for the band 260 - 470 MHz, $\mu\text{V/m}$ at 3 meters = $41.6667 \times (\text{operating frequency, MHz}) - 7083.3333$.
 Based on the average value of the measured emissions.

| For periodic transmissions (lower field strength) | | |
|---|--------------------------------|----------------------------------|
| Frequency Band (MHz) | Fundamental Limit (uV/m) at 3m | Fundamental Limit (dBuV/m) at 3m |
| 40.66-40.70 | 1000 | 60 |
| 70-130 | 500 | 54 |
| 130-174 | 500-1500(**) | 54-63.5 |
| 174-260 | 1500 | 63.5 |
| 260-470 | 1500-5000(**) | 63.5-74 |
| Above 470 | 5000 | 74 |

** 1. Linear interpolations, the formulas for calculating the maximum permitted fundamental field strengths are as follows:
 (1) for the band 130 - 174 MHz, $\mu\text{V/m}$ at 3 meters = $22.72727 \times (\text{operating frequency, MHz}) - 2454.545$;
 (2) for the band 260 - 470 MHz, $\mu\text{V/m}$ at 3 meters = $16.6667 \times (\text{operating frequency, MHz}) - 2833.3333$.
 Based on the average value of the measured emissions.

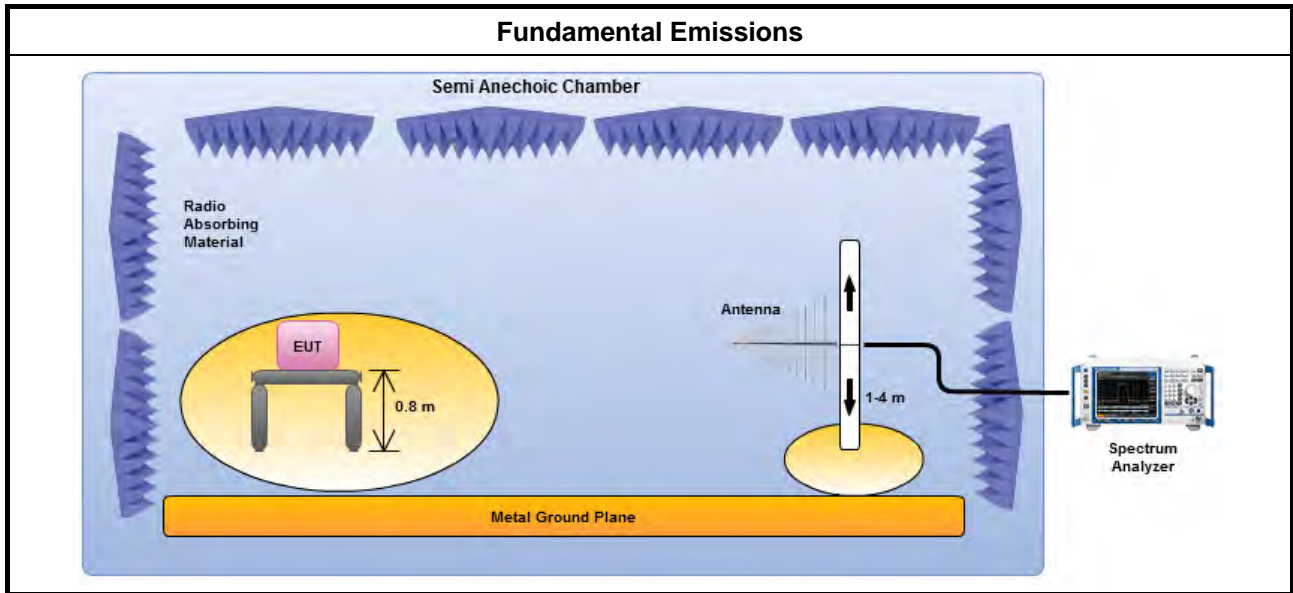
3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.3.3 Test Procedures

| | |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | For the transmitter emissions shall be measured using following options below: |
| <input type="checkbox"/> | Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW) – Duty cycle \geq 100%. |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions. Adjusted by a “duty cycle correction factor”, derived from $20\log(\text{dwell time}/100 \text{ ms})$. Average emission = peak emission + 20 log (duty cycle). |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit. |
| <input checked="" type="checkbox"/> | For radiated measurement, refer as ANSI C63.10, clause 6.5 for radiated emissions |

3.3.4 Test Setup



3.3.5 Test Result of Fundamental Emissions

| Field Strength of Fundamental Emissions Result | | | | | |
|---|-----------------|-------------------------|-------------|-------------------|---------|
| Modulation Mode | Frequency (MHz) | Fundamental (dBuV/m)@3m | Margin (dB) | Limit (dBuV/m)@3m | Type |
| ASK-Transmit | 315 | 65.25 | 30.37 | 95.62 | peak |
| ASK-Transmit | 315 | 54.49 | 21.13 | 75.62 | average |
| Result | | Complied | | | |
| Note 1: Measurement worst emissions of receive antenna polarization: Horizontal. Note 2: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle). | | | | | |

3.4 Transmitter Radiated Unwanted Emissions

3.4.1 Transmitter Radiated Unwanted Emissions Limit

| For manually operated within 5 sec, activated automatically within 5 sec, periodic transmissions | | |
|--|-----------------------------|-------------------------------|
| Unwanted emissions limit follow this table or the general limits FCC 15.209, whichever limit permits higher field strength. | | |
| Frequency Band (MHz) | Spurious Limit (uV/m) at 3m | Spurious Limit (dBuV/m) at 3m |
| 40.66-40.70 | 225 | 47 |
| 70-130 | 125 | 41.9 |
| 130-174 | 125-375(**) | 41.9-51.5 |
| 174-260 | 375 | 51.5 |
| 260-470 | 375-1250(**) | 51.5-61.9 |
| Above 470 | 1250 | 61.9 |
| **1. Linear interpolations, the formulas for calculating the maximum permitted fundamental field strengths are as follows: (1) for the band 130 - 174 MHz, $\mu\text{V/m}$ at 3 meters = $56.81818 \times (\text{operating frequency, MHz}) - 6136.3636$; (2) for the band 260 - 470 MHz, $\mu\text{V/m}$ at 3 meters = $41.6667 \times (\text{operating frequency, MHz}) - 7083.3333$. Based on the average value of the measured emissions. | | |

| For periodic transmissions (lower field strength) | | |
|--|-----------------------------|-------------------------------|
| Unwanted emissions limit follow this table or the general limits FCC 15.209, whichever limit permits higher field strength. | | |
| Frequency Band (MHz) | Spurious Limit (uV/m) at 3m | Spurious Limit (dBuV/m) at 3m |
| 40.66-40.70 | 100 | 40 |
| 70-130 | 50 | 34 |
| 130-174 | 50-150(**) | 34-43.5 |
| 174-260 | 150 | 43.5 |
| 260-470 | 150-500(**) | 43.5-54 |
| Above 470 | 500 | 54 |
| ** 1. Linear interpolations, the formulas for calculating the maximum permitted fundamental field strengths are as follows: (1) for the band 130 - 174 MHz, $\mu\text{V/m}$ at 3 meters = $22.72727 \times (\text{operating frequency, MHz}) - 2454.545$; (2) for the band 260 - 470 MHz, $\mu\text{V/m}$ at 3 meters = $16.6667 \times (\text{operating frequency, MHz}) - 2833.3333$. Based on the average value of the measured emissions. | | |

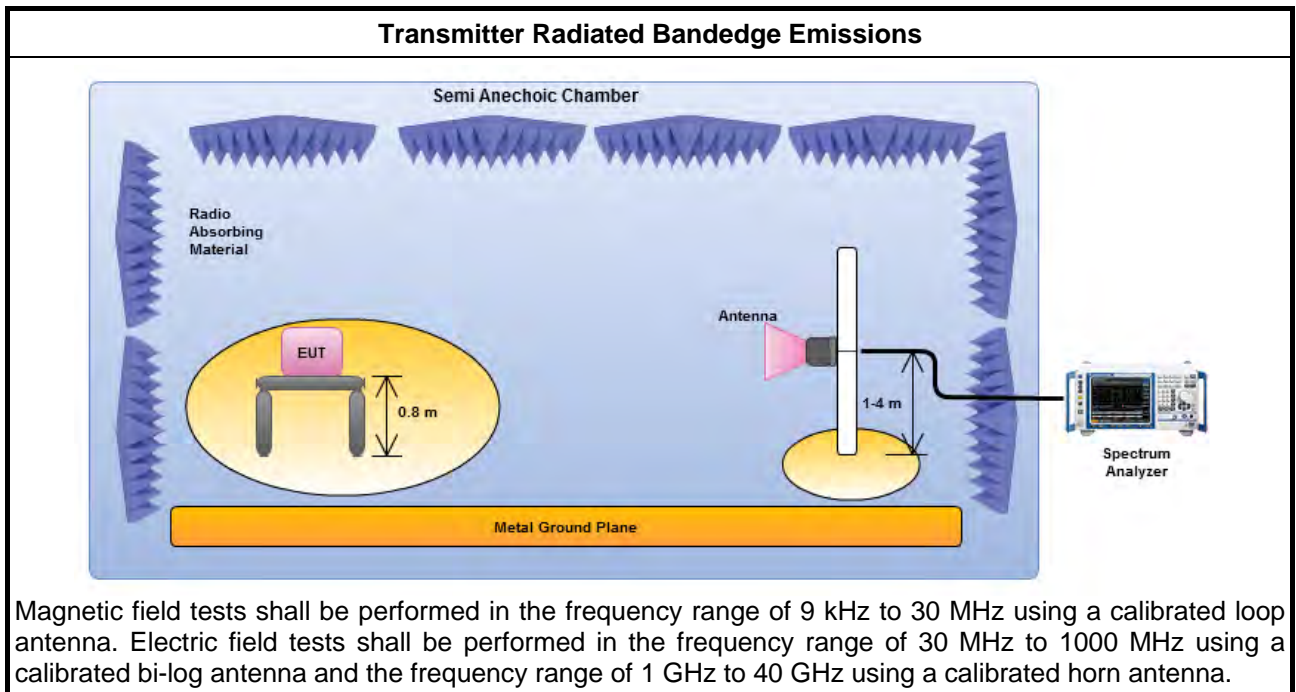
3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

3.4.3 Test Procedures

| Test Method – General Information | |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | The average emission levels shall be measured in [duty cycle \geq 98 or duty factor]. |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 6.9.2.2 bandedge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band. |
| <input checked="" type="checkbox"/> | For the transmitter unwanted emissions shall be measured using following options below: |
| <input type="checkbox"/> | Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW) – Duty cycle \geq 100%. |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 4.2.3.2.4 average value of pulsed emissions. Adjusted by a “duty cycle correction factor”, derived from $20\log(\text{dwell time}/100 \text{ ms})$. Average emission = peak emission + 20 log (duty cycle). |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 4.2.3.2.2 measurement procedure peak limit. |
| <input checked="" type="checkbox"/> | For the transmitter bandedge emissions shall be measured using following options below: |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 6.9.2 for band-edge testing. |
| <input type="checkbox"/> | Refer as ANSI C63.10, clause 6.9.3 for marker-delta method for band-edge measurements. |
| <input checked="" type="checkbox"/> | For radiated measurement. |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 6.4 for radiated emissions from below 30 MHz. |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 6.5 for radiated emissions from 30 MHz to 1000 MHz. |
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 6.6 for radiated emissions from above 1 GHz. |

3.4.4 Test Setup



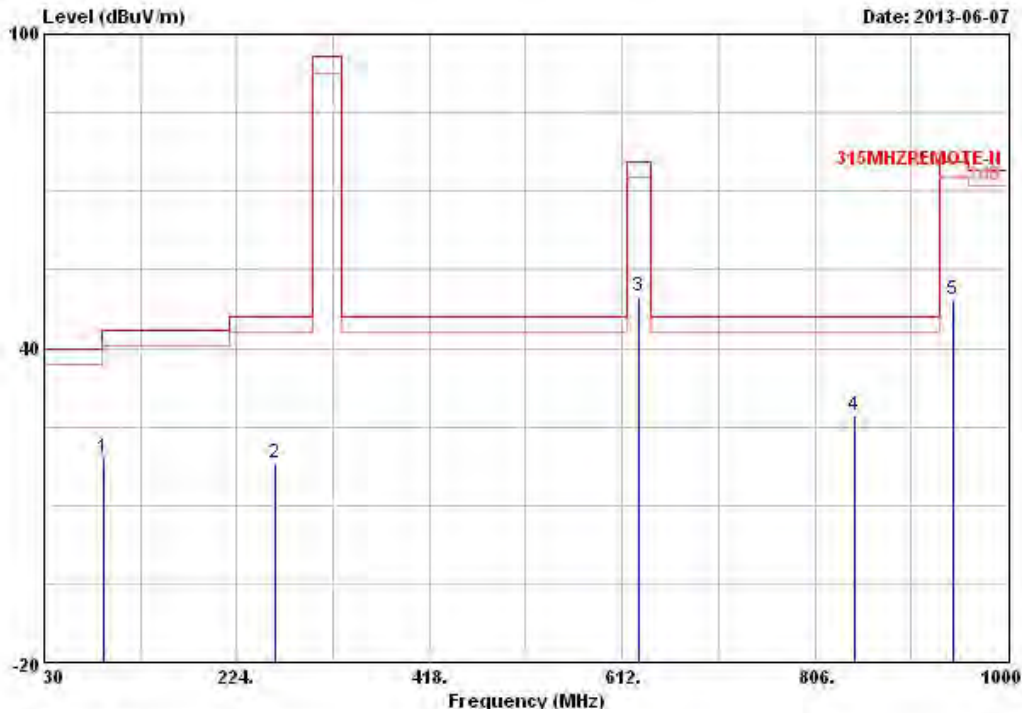
3.4.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.



3.4.6 Transmitter Radiated Unwanted Emissions (Below 1GHz)

| Transmitter Radiated Unwanted Emissions (Below 1GHz) | | | |
|--|--------------|-----------------|----|
| Operating Mode | 1 | Test Freq. (FX) | F1 |
| Operating Function | ASK-Transmit | Polarization | V |



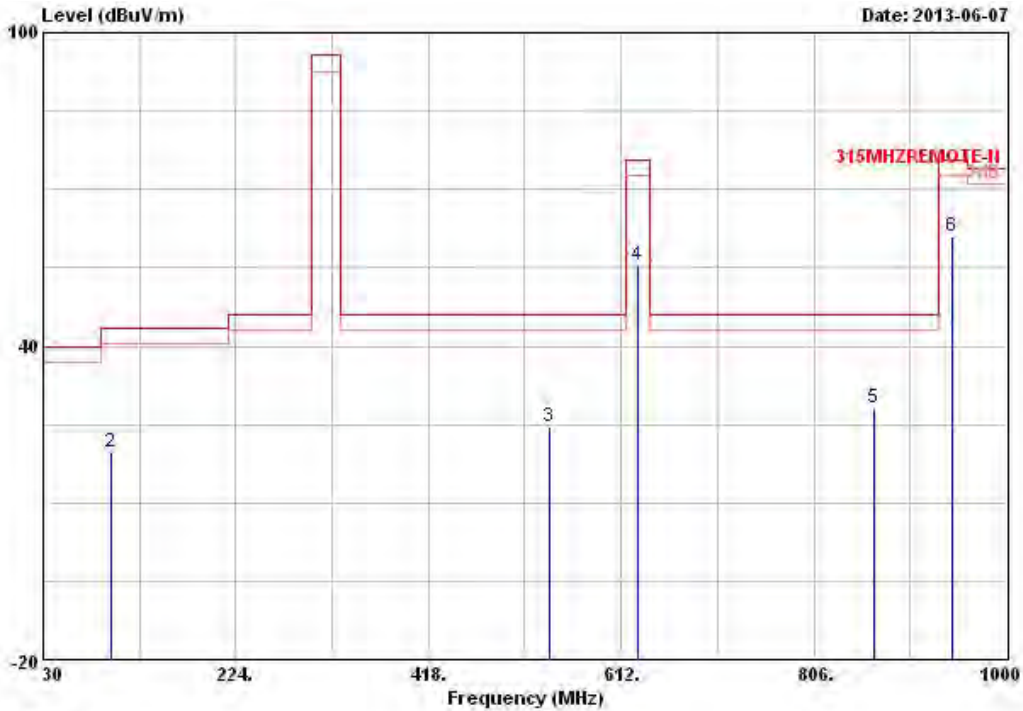
| | Freq | Level | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark | Ant Pos | Table Pos |
|---|---------|--------|------------|------------|-------------------|----------------|------------|---------------|--------|---------|-----------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | | cm | deg |
| 1 | 90.140 | 19.11 | -24.39 | 43.50 | 36.05 | 9.10 | 1.38 | 27.42 | Peak | --- | --- |
| 2 | 261.830 | 18.10 | -27.90 | 46.00 | 29.16 | 13.36 | 2.37 | 26.79 | Peak | --- | --- |
| 3 | 629.460 | 49.83 | -25.79 | 75.62 | 55.04 | 18.97 | 3.80 | 27.98 | Peak | --- | --- |
| 4 | 845.770 | 27.29 | -18.71 | 46.00 | 30.26 | 20.27 | 4.44 | 27.68 | Peak | --- | --- |
| 5 | 944.710 | 49.26 | -26.36 | 75.62 | 51.05 | 20.85 | 4.78 | 27.42 | Peak | --- | --- |

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).



Transmitter Radiated Unwanted Emissions (Below 1GHz)

| | | | |
|--------------------|--------------|-----------------|----|
| Operating Mode | 1 | Test Freq. (FX) | F1 |
| Operating Function | ASK-Transmit | Polarization | H |



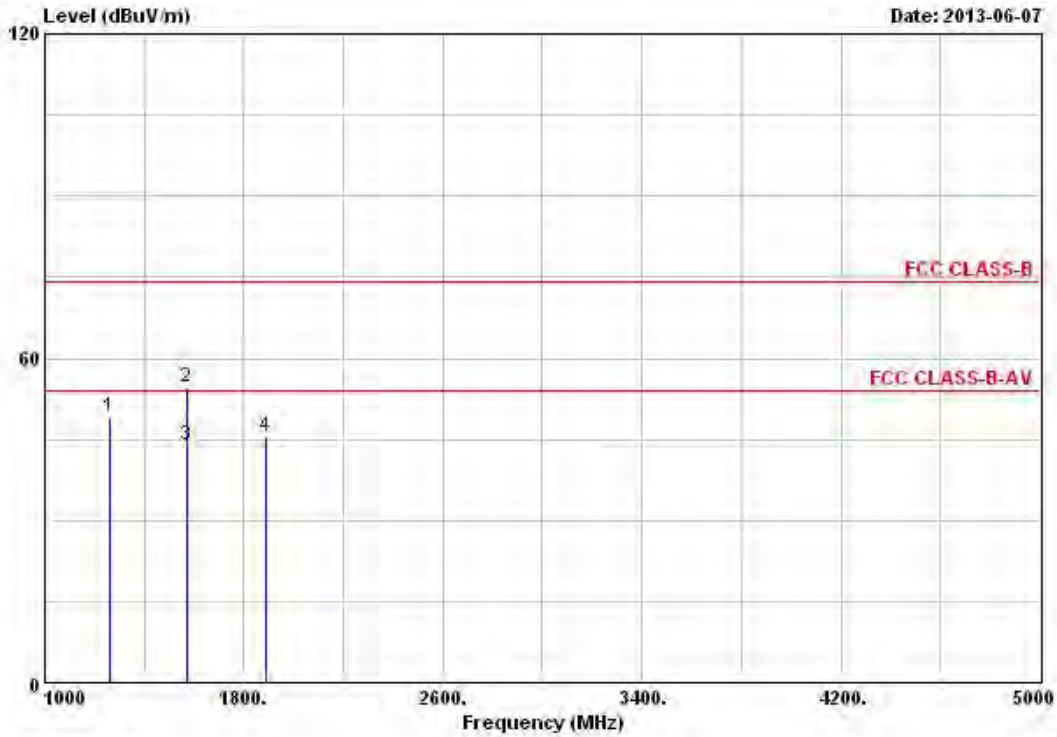
| | Freq | Level | Over Limit | Limit | ReadAntenna | Cable | Preamp | | Ant | Table |
|---|---------|--------|------------|--------|-------------|-------|--------|-------|------|-------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | cm | deg |
| 1 | 30.000 | 20.93 | -19.07 | 40.00 | 29.07 | 18.70 | 0.77 | 27.61 | Peak | --- |
| 2 | 97.900 | 19.61 | -23.89 | 43.50 | 34.98 | 10.58 | 1.44 | 27.39 | Peak | --- |
| 3 | 540.220 | 24.53 | -21.47 | 46.00 | 30.39 | 18.58 | 3.48 | 27.92 | Peak | --- |
| 4 | 629.460 | 55.38 | -20.24 | 75.62 | 60.59 | 18.97 | 3.80 | 27.98 | Peak | --- |
| 5 | 866.140 | 28.16 | -17.84 | 46.00 | 31.10 | 20.21 | 4.48 | 27.63 | Peak | --- |
| 6 | 944.710 | 61.10 | -14.52 | 75.62 | 62.89 | 20.85 | 4.78 | 27.42 | Peak | --- |

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).



3.4.7 Transmitter Radiated Unwanted Emissions (Above 1GHz)

| Transmitter Radiated Unwanted Emissions (Above 1GHz) | | | |
|--|--------------|-----------------|----|
| Operating Mode | 1 | Test Freq. (FX) | F1 |
| Operating Function | ASK-Transmit | Polarization | V |



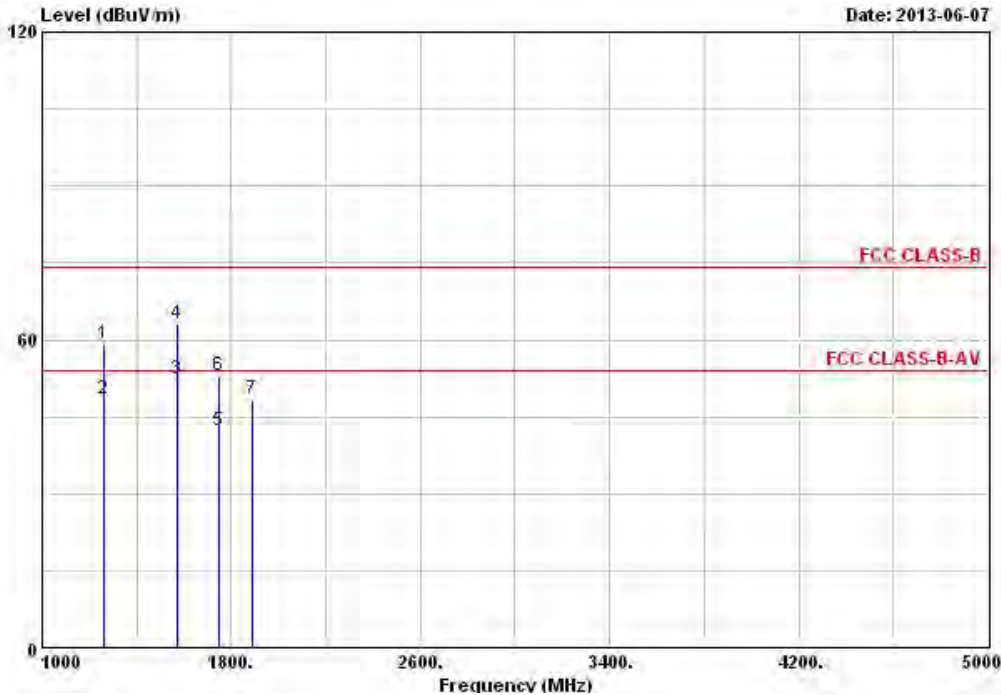
| | Freq | Level | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark | Ant Pos | Table Pos |
|-----|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | | cm | deg |
| 1 | 1260.000 | 48.96 | -25.04 | 74.00 | 56.05 | 24.47 | 1.97 | 33.53 | Peak | --- | --- |
| 2 @ | 1574.000 | 54.77 | -19.23 | 74.00 | 60.09 | 25.47 | 2.14 | 32.93 | Peak | --- | --- |
| 3 @ | 1574.000 | 44.01 | -9.99 | 54.00 | 49.33 | 25.47 | 2.14 | 32.93 | Average | --- | --- |
| 4 | 1892.000 | 45.41 | -28.59 | 74.00 | 49.02 | 26.79 | 2.32 | 32.72 | Peak | --- | --- |

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
 Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).



Transmitter Radiated Unwanted Emissions (Above 1GHz)

| | | | |
|--------------------|--------------|-----------------|----|
| Operating Mode | 1 | Test Freq. (FX) | F1 |
| Operating Function | ASK-Transmit | Polarization | H |



| | Freq | Level | Over Limit | Limit Line | ReadAntenna Level | Antenna Factor | Cable Loss | Preamp Factor | Remark | Ant Pos | Table Pos |
|---|----------|--------|------------|------------|-------------------|----------------|------------|---------------|---------|---------|-----------|
| | MHz | dBuV/m | dB | dBuV/m | dBuV | dB/m | dB | dB | | cm | deg |
| 1 | 1260.000 | 59.30 | -14.70 | 74.00 | 66.39 | 24.47 | 1.97 | 33.53 | Peak | --- | --- |
| 2 | 1260.000 | 48.54 | -5.46 | 54.00 | 55.63 | 24.47 | 1.97 | 33.53 | Average | --- | --- |
| 3 | 1574.000 | 52.42 | -1.58 | 54.00 | 57.74 | 25.47 | 2.14 | 32.93 | Average | --- | --- |
| 4 | 1574.000 | 63.18 | -10.82 | 74.00 | 68.50 | 25.47 | 2.14 | 32.93 | Peak | --- | --- |
| 5 | 1748.000 | 42.27 | -11.73 | 54.00 | 46.66 | 26.20 | 2.23 | 32.82 | Average | --- | --- |
| 6 | 1748.000 | 53.03 | -20.97 | 74.00 | 57.42 | 26.20 | 2.23 | 32.82 | Peak | --- | --- |
| 7 | 1892.000 | 48.51 | -25.49 | 74.00 | 52.12 | 26.79 | 2.32 | 32.72 | Peak | --- | --- |

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 3: For the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
 Note 4: If duty cycle < 100%, average emission = peak emission + 20 log (duty cycle).

3.5 Operation Restriction

3.5.1 Operation Restriction Limit

| Operation Restriction Limit | |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | Manually operated: manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 sec of being released. |
| <input type="checkbox"/> | Activated automatically: transmitter activated automatically shall cease transmission within 5 sec after activation. |
| <input type="checkbox"/> | Periodic transmissions: permitted with total transmission time of 2 sec per hour or less. |
| <input type="checkbox"/> | Periodic transmissions (lower field strength): each transmission is not greater than 1 sec and the silent period between transmissions is at least 30 times the duration of the transmission but in no case less than 10 sec. |

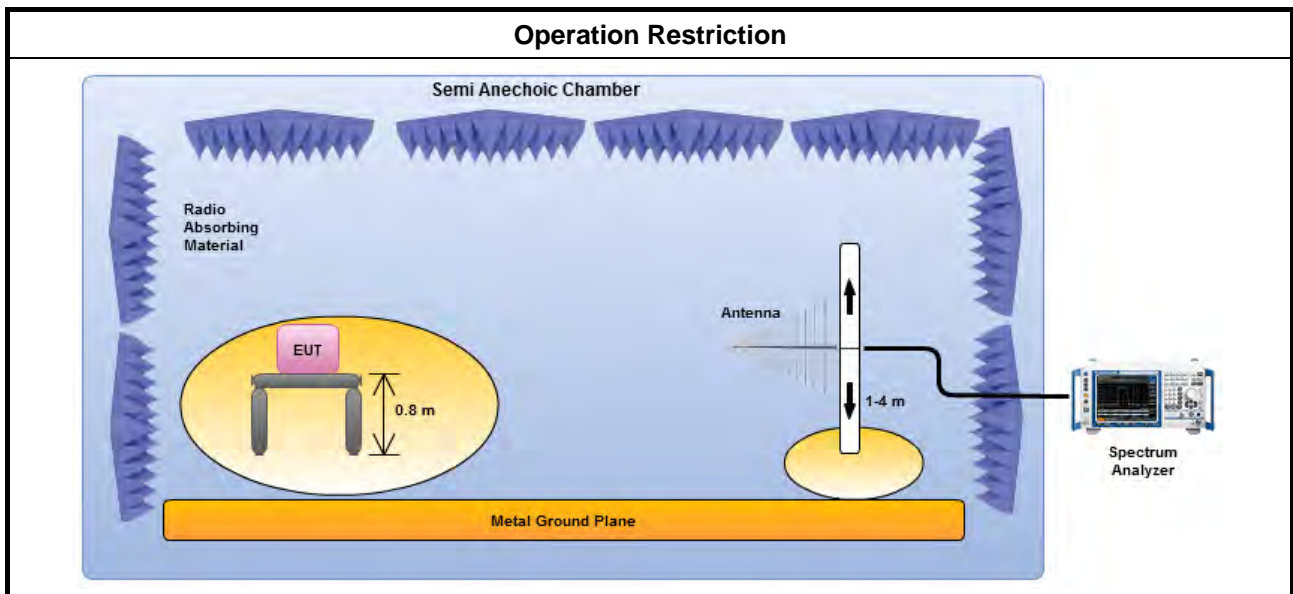
3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report. Activated automatically within 5 sec

3.5.3 Test Procedures

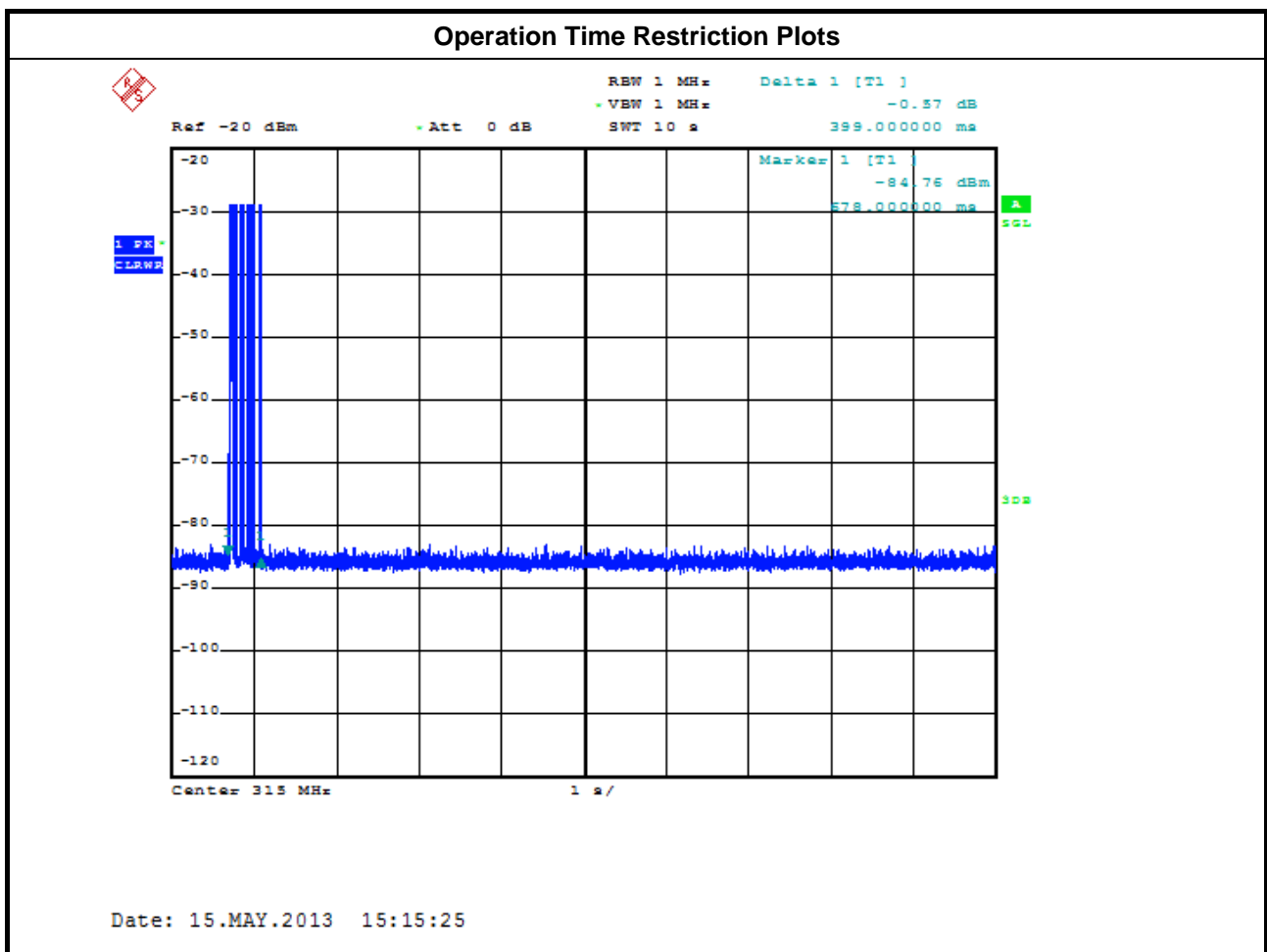
| Test Method | |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | Refer as ANSI C63.10, clause 7.4 for periodic operation measurement. |

3.5.4 Test Setup



3.5.5 Test Result of Operation Restriction

| Operation Restriction Limit | |
|-------------------------------------|---|
| <input checked="" type="checkbox"/> | Manually operated: manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 sec of being released. |
| <input type="checkbox"/> | Activated automatically: transmitter activated automatically shall cease transmission within 5 sec after activation. |
| <input type="checkbox"/> | Periodic transmissions: permitted with total transmission time of 2 sec per hour or less. |
| <input type="checkbox"/> | Periodic transmissions (lower field strength): each transmission is not greater than 1 sec and the silent period between transmissions is at least 30 times the duration of the transmission but in no case less than 10 sec. |





4 Test Equipment and Calibration Data

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Remark |
|----------------------------|--------------|------------------|-------------|-----------------|------------------|---------------------|
| Spectrum Analyzer | R&S | FSP 40 | 100305 | 9KHz~40GHz | Mar. 20, 2013 | Conducted (TH01-HY) |
| AC Power Source | G.W | APS-9102 | EL920581 | AC 0V ~ 300V | Jul. 02, 2012 | Conducted (TH01-HY) |
| Temp. and Humidity Chamber | Giant Force | GTH-225-20-SP-SD | MAA1112-007 | -20 ~ 100°C | Nov. 21, 2012 | Conducted (TH01-HY) |
| Signal Generator | R&S | SMR40 | 100116 | 10MHz ~ 40GHz | Jun. 26, 2012 | Conducted (TH01-HY) |
| Power Sensor | Anritsu | MA2411B | 0917017 | 300MHz ~ 40GHz | Feb. 02, 2013 | Conducted (TH01-HY) |
| Power Meter | Anritsu | ML2495A | 0949003 | 300MHz ~ 40GHz | Feb. 02, 2013 | Conducted (TH01-HY) |
| RF Cable-2m | HUBER+SUHNER | SUCOFLEX_104 | SN 345675/4 | 1GHz ~ 26.5GHz | NA | Conducted (TH01-HY) |
| RF Cable-3m | HUBER+SUHNER | SUCOFLEX_104 | SN 345669/4 | 1GHz ~ 26.5GHz | NA | Conducted (TH01-HY) |

Note: Calibration Interval of instruments listed above is one year.

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Remark |
|--------------------------|----------------|----------------|-------------|--------------------|------------------|-----------------------|
| Spectrum Analyzer | R&S | FSP30 | 100793 | 9kHz ~ 30GHz | Sep. 26, 2012 | Radiation (03CH03-HY) |
| 3m Semi Anechoic Chamber | SIDT FRANKONIA | SAC-3M | 03CH03-HY | 30MHz ~ 1GHz 3m | Dec. 01, 2012 | Radiation (03CH03-HY) |
| Amplifier | HP | 8447D | 2944A08033 | 10kHz ~ 1.3GHz | May 03, 2013 | Radiation (03CH03-HY) |
| RF Cable-R03m | Jye Bao | RG142 | CB021 | 30MHz ~ 1GHz | Jan. 17, 2013 | Radiation (03CH03-HY) |
| RF Cable-high | SUHNER | SUCOFLEX 106 | 03CH03-HY | 1GHz ~ 40GHz | Jan. 17, 2013 | Radiation (03CH03-HY) |
| Bilog Antenna | SCHAFFNER | CBL 6112D | 22237 | 30MHz ~ 1GHz | Sep. 22, 2012 | Radiation (03CH03-HY) |
| Turn Table | EM Electronics | EM Electronics | 060615 | 0 ~ 360 degree | N/A | Radiation (03CH03-HY) |
| Antenna Mast | MF | MF-7802 | MF780208179 | 1 ~ 4 m | N/A | Radiation (03CH03-HY) |

Note: Calibration Interval of instruments listed above is one year.

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Remark |
|--------------|--------------|-----------|------------|-----------------|------------------|-----------------------|
| Loop Antenna | R&S | HFH2-Z2 | 860004/001 | 9kHz ~ 30MHz | Jul. 03, 2012 | Radiation (03CH02-HY) |

Note: Calibration Interval of instruments listed above is two year.